New study looks at efficacy of self-guided and accelerated post-surgical therapy programs

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Research presented at the 2016 Annual Meeting of the American Academy of Orthopaedic Surgeons (AAOS) challenges two common rehabilitation standards: physical therapy following total hip replacement (THR) at an outpatient facility, and gradual movement of the quadriceps tendon following total knee replacement (TKR) surgery.

In the study, "Formal Physical Therapy After Primary Total Hip Arthroplasty May Not Be Necessary," researchers found that patients who performed prescribed exercises at home without a physical therapist progressed comparably as those who received physical therapy at an outpatient facility.

The study followed 89 patients who had THR surgery followed by 10 weeks of physical therapy. Of those patients, 48 received two-to-three weekly therapy sessions in outpatient facilities with out-of-pocket costs ranging from $10-$60 per session for non-Medicare patients. The other 41 patients used written instructions and illustrations to perform the same exercises on their own at no extra cost.

Patients were assessed at one and six months after their procedures using standardized tests assessing levels of pain, activity, range-of-motion and stiffness. The study found no significant differences between patients in both groups.

"Most patients can do physical therapy on their own after total hip replacement," said senior study author Matt Austin, MD, an orthopaedic surgeon with the Rothman Institute. "This study also demonstrates how we can more optimally utilize health resources and lower costs."

In the second study, "High-intensity versus Low-intensity Rehabilitation after Total Knee Arthroplasty: A Randomized Controlled Trial," researchers found that activating and exercising the quadriceps muscles as soon as possible after TKR may be the key to regaining optimal, post-surgical function in the knee and legs.

The quadriceps muscles in the front of the thigh are important for straightening and stabilizing the leg during movement. Most patients have difficulty fully activating i.e., contracting the quadriceps during the first month after surgery, which results in pronounced quadriceps weakness. Quadriceps activation may be improved through strengthening exercises or neuromuscular electrical stimulation, said senior author and orthopaedic surgeon Douglas Dennis, MD.

The study followed 162 patients at the University of Colorado who received a total knee replacement at Colorado Joint Replacement, the University of Colorado Hospital, or Panorama Orthopedics & Spine Center. Patients were divided into two groups for high and low-intensity therapy, with all patients receiving 25 physical therapy sessions over 12 weeks. Patients who activated more of their quadriceps or "quad" muscles earlier in their therapy showed better rehabilitation progress when it came to their abilities to climb stairs, a telltale sign of recovery after knee replacement.

"Quad activation is the biggest thing we have got to change to improve recovery and long-term function for knee replacement patients," said Dr. Dennis.

These findings may be especially important for patients under age 59—the fastest growing population undergoing knee replacement—who want to remain active after total knee replacement.

Provided by American Academy of Orthopaedic Surgeons